

IN THE CLAIMS:

Please amend the claims as follows:

1-18. (Canceled)

19. (Previously Presented) A substrate processing apparatus, comprising:
a fluid impermeable evaporation shield having a plenum coupled to a low partial pressure source and adapted to be positioned over a substrate positioned on a substrate support, the fluid impermeable evaporation shield having a fluid retaining surface adapted to form a gap with respect to the substrate, wherein the thickness of the gap is between about 0.5 millimeters and about 4 millimeters.

20. (Previously Presented) The apparatus of claim 19, wherein the fluid impermeable evaporation shield is sized to have an outer diameter that is greater than or equal to an outer diameter of the substrate.

21. (Canceled)

22. (Previously Presented) The apparatus of claim 19, wherein the gap is adapted to be filled with a fluid layer.

23. (Previously Presented) The apparatus of claim 22, wherein the fluid impermeable evaporation shield further comprises at least one port to deliver a fluid to form the fluid layer.

24. (Previously Presented) The apparatus of claim 22, wherein the fluid impermeable evaporation shield further comprises at least one port to reclaim a fluid on the substrate.

25. (Previously Presented) The apparatus of claim 22, wherein the fluid impermeable evaporation shield further comprises at least one port to deliver a fluid to form the fluid layer and to reclaim the fluid on the substrate.

26. (Canceled)

27. (Previously Presented) The apparatus of claim 19, wherein the fluid impermeable evaporation shield comprises a degassing membrane.

28-34. (Canceled)

35. (Previously Presented) The apparatus of claim 22, wherein the fluid impermeable evaporation shield further comprises a seal adapted to contact the substrate support.

36. (Previously Presented) The apparatus of claim 22, wherein the substrate support further comprises a seal adapted to contact the fluid impermeable evaporation shield.

37. (Canceled)

38. (Previously Presented) The apparatus of claim 22, wherein the fluid impermeable evaporation shield further comprises fluid agitation components selected from the group consisting of channels, veins, and protrusions, the fluid agitation components being disposed on a lower surface of the fluid impermeable evaporation shield.

39. (Previously Presented) The apparatus of claim 19, wherein the fluid impermeable evaporation shield comprises a material selected from the group consisting of polymers, ceramics, quartz, and coated metals.

40. (Previously Presented) The apparatus of claim 19, wherein the fluid impermeable evaporation shield comprises a polymer material.

41-95. (Canceled)

96. (Currently Amended) A substrate processing apparatus, comprising:
a moveable evaporation shield adapted to be positioned over a substrate contacting a substrate support, the moveable evaporation shield comprising a degassing membrane in communication with a plenum in communication with a low partial pressure source, wherein the moveable evaporation shield forms an adjustable gap between the degassing membrane and the substrate.

97. (Previously Presented) The apparatus of claim 96, wherein the moveable evaporation shield further comprises a plenum port coupled to the plenum.

98. (Currently Amended) A substrate processing apparatus, comprising:
an evaporation shield adapted to be positioned over a substrate disposed on a substrate support, the evaporation shield comprising a degassing membrane and a plenum in communication with the degassing membrane, wherein a gap is formed between the degassing membrane and the substrate; and
a vacuum source coupled to the plenum.

99. (Currently Amended) A substrate processing apparatus, comprising:
an evaporation shield adapted to be positioned over a substrate disposed on a substrate support, the evaporation shield comprising a degassing membrane and a plenum in communication with the degassing membrane, wherein a gap is formed between the degassing membrane and the substrate; and
a low partial pressure source coupled to the plenum.

100. (Previously Presented) The apparatus of claim 22, wherein the fluid impermeable evaporation shield is adapted to provide heat to the fluid layer.

101. (Previously Presented) The apparatus of claim 22, wherein the fluid impermeable evaporation shield is adapted to rotate.

102. (Previously Presented) The apparatus of claim 96, wherein the moveable evaporation shield is adapted to be vertically moveable.

103. (Previously Presented) The apparatus of claim 19, wherein the fluid impermeable evaporation shield is adapted to be vertically moveable.

104. (Canceled)

105. (Previously Presented) The apparatus of claim 27, wherein the degassing membrane is in communication with the fluid retaining surface and the plenum.

106. (Previously Presented) The apparatus of claim 19, wherein the low partial pressure source contains a low partial pressure of a defined gas.

107. (Previously Presented) The apparatus of claim 19, wherein the low partial pressure source is a vacuum.

108. (New) The apparatus of claim 96, wherein the substrate support further comprises a heating element that is adapted to heat a substrate positioned on the substrate support.

109. (New) The apparatus of claim 98, wherein the substrate support further comprises a heating element that is adapted to heat a substrate positioned on the substrate support.

110. (New) The apparatus of claim 99, wherein the substrate support further comprises a heating element that is adapted to heat a substrate positioned on the substrate support.

111. (New) The apparatus of claim 96, wherein the moveable evaporation shield further comprises a fluid port that is in fluid communication with one or more fluid sources and is adapted to deliver a fluid to the substrate contacting the substrate support.

112. (New) The apparatus of claim 96, wherein the low partial pressure source is adapted to apply a vacuum pressure to the plenum.

113 (New) The apparatus of claim 98, wherein a chemical processing solution positioned in the gap is in fluid communication with the degassing membrane and the substrate, wherein the chemical processing solution is selected from a group consisting of a Group IV metal containing solution, a copper containing solution, a reducing agent solution, or combinations thereof.

114. (New) The apparatus of claim 99, wherein a chemical processing solution positioned in the gap is in fluid communication with the degassing membrane and the substrate, wherein the chemical processing solution is selected from a group consisting of a Group IV metal containing solution, a copper containing solution, a reducing agent solution, or combinations thereof.

115. (New) The apparatus of claim 96, wherein the substrate support has a substrate supporting surface that is adapted to support and align the substrate relative to the degassing membrane during processing.